

REMARKS

This is in response to the Office Action dated June 15, 2005. Claims 1-15 and 18-33 are pending.

Claim 1 stands rejected under 35 U.S.C. Section 103(a) as being allegedly unpatentable over Yoshida in view of Song (US 6,657,695). This Section 103(a) rejection is respectfully traversed for at least the following reasons.

Claim 1 requires that "when a voltage is applied between the first electrode and the second electrode, a plurality of liquid crystal domains are formed in the plurality of openings and the solid portion by inclined electric fields generated at respective edge portions of the plurality of openings of the first electrode, for producing a display by changing orientation states of the plurality of liquid crystal domains in accordance with the applied voltage, and wherein each of said liquid crystal domains includes: (a) first liquid crystal molecules oriented substantially parallel to a normal of the first substrate thereby defining an axis, and (b) second liquid crystal molecules existing around all lateral sides of said axis and radially inclined relative to the axis."

For example and without limitation, Fig. 2B of the instant application illustrates that when a voltage is applied between the first electrode 14 and the second electrode 22, a plurality of liquid crystal domains are formed in the plurality of openings 14a and the solid portion 14b by inclined electric fields (see equipotential lines EQ) generated at respective edge portions EG of the plurality of openings of the first electrode. As shown in Figs. 2B, 4C, 5, 15B, and 19 for example, and without limitation, each such domain formed by these inclined electric fields EQ at the edge portions EG of the openings includes: (a) first liquid crystal molecules oriented substantially parallel to a normal of the first substrate thereby defining an axis, and (b) second liquid crystal molecules existing around all lateral sides of said axis and radially inclined relative

to the axis for at least one domain. For example, Fig. 2B illustrates first liquid crystal molecules oriented along axes SA so as to be parallel to a normal of the first substrate. The second molecules are radially inclined relative to the first molecules around all lateral sides thereof as shown in Figs. 2B, 4C, 5, 15B, and 19 for example. This allows viewing angle dependence of display quality to be reduced, thereby resulting in improved display characteristics. The cited art fails to disclose or suggest the aforesaid underlined and quoted aspect of claim 1.

Yoshida fails to disclose or suggest the aforesaid quoted features of claim 1, for the reasons explained in the Remarks section of the Amendment filed October 24, 2003. The Office Action admits these deficiencies in Yoshida. Admitting and recognizing these fundamental flaws in Yoshida, the Office Action cites to Song.

Song also fails to disclose or suggest the aforesaid underlined and quoted features of claim 1. There are at least two deficiencies in Song. First, Fig. 4 of Song illustrates that when voltage is applied disclination areas D1 and D2 of *randomly* oriented liquid crystal molecules are provided over protrusions. Thus, the first shortcoming of Song is that Song fails to disclose or suggest “(a) first liquid crystal molecules oriented *substantially parallel to a normal* of the first substrate thereby defining an axis” when voltage is applied as required by claim 1. Second, Song also fails to disclose or suggest “(b) second liquid crystal molecules existing around *all lateral sides* of said axis and *radially inclined relative to the axis*” when voltage is applied as required by claim 1. Fig. 7 of Song illustrates that Song’s protrusions are linear-shaped, so that there can be no radial inclination as required by claim 1. The linear-shape of Song’s protrusions also prevents liquid crystal molecules from being present in a domain “around all lateral sides” of the axis as called for by claim 1. Thus, even the alleged combination of Yoshida and Song (which

would be incorrect in any event) fails to meet claim 1 with respect to both features (a) and (b).

The Section 103(a) rejection of claim 1 should be withdrawn.

Claims 24-25 also require: (a) first liquid crystal molecules oriented substantially parallel to a normal of the first substrate thereby defining an axis, and (b) second liquid crystal molecules existing around all lateral sides of said axis and radially inclined relative to the axis. As explained above, Yoshida and Song fail to disclose or suggest these features. Even the alleged combination of these two references (which would be incorrect in any event) still fails to meet the inventions of claims 24-25. Citation to Uemura cannot cure the flaws of Yoshida and Song in these respects. Again, the Section 103(a) rejections of claims 24-25 should be withdrawn.

Claim 18 stands rejected under Section 103(a) as being allegedly unpatentable over Yoshida in view of Song, and further in view of Uemura. This Section 103(a) rejection is respectfully traversed for at least the following reasons.

Claim 18 requires that “*at least some of the plurality of openings have substantially the same shape and the same size, and form at least one unit lattice arranged so as to have rotational symmetry, and wherein each region of the solid portion surrounded with at least some of the plurality of openings is in a substantially circular shape.*”

Yoshida and Song both fail to disclose or suggest the subject matter of the final paragraph of claim 18 quoted above (e.g., they fail to disclose or suggest the claimed lattice, and the claimed substantially circular shape). Moreover, one of ordinary skill in the art would recognize that Yoshida's electrodes 18, 20 must be parallel for the display to function properly; thus, one of ordinary skill in the art would never have modified Yoshida (or Song) to provide for substantially circular openings as called for in claim 18. One also would not have modified Yoshida to meet the lattice requirement of this claim for the same reason.

Furthermore, Uemura also fails to disclose or suggest that “*each region of the solid portion surrounded with at least some of the plurality of openings is in a substantially circular shape*” as called for in claim 18. In the Office Action, it is alleged that Figs. 6a and 6b of Uemura and Figs. 28-30 of Yoshida disclose substantially circular unit solid portions (see claim 18). However, Figs. 6a and 6b of Uemura are merely graphs for showing the relationship between panel brightness and viewing directions. These figures do not disclose these features of claim 18. Moreover, Figs. 28-30 of Yoshida are not top views seen from the substrate normal direction, but are cross sectional views. Thus, these figures also do not disclose or suggest the aforesaid features such as the shape of the electrode as seen from a direction normal to the substrate. Thus, even the alleged combination of Yoshida, Song and Uemura (which would be incorrect in any event) fails to meet the invention of claim 18.

Claim 19 requires “at least some of the plurality of openings have substantially the same shape and the same size, and form at least one unit *lattice arranged so as to have rotational symmetry*, and wherein each region of the solid portion surrounded with at least some of the plurality of openings is in a *substantially rectangular shape with substantially arc-shaped corners*.” The cited art fails to disclose or suggest these features of claim 19, either alone or in the alleged combination. In the Office Action, it is alleged that Figs. 6a and 6b of Uemura and Figs. 28-30 of Yoshida disclose substantially rectangular shaped solid portions with substantially arc-shaped corners. However, as explained above, Figs. 6a and 6b of Uemura are merely graphs for showing the relationship between panel brightness and viewing directions. These figures of Uemura do not disclose these features of claim 19. Moreover, Figs. 28-30 of Yoshida are not top views seen from the substrate normal direction, but instead are cross sectional views. Thus, these figures also do not disclose or suggest the aforesaid features of claim 19 such as the shape

of the electrode as seen from a direction normal to the substrate. Thus, even the alleged combination of Yoshida, Song and Uemura (which would be incorrect in any event) fails to meet the invention of claim 19.

It is respectfully requested that all rejections be withdrawn. All claims are in condition for allowance. If any minor matter remains to be resolved, the Examiner is invited to telephone the undersigned with regard to the same.

Respectfully submitted,

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